

REMARKS

The Examiner rejected claims 1-8, 18, 21-26, 30-32, 34-36, 40-42, 44-62 and 78-85 as being anticipated by Mochizuki et al., U.S. Patent No. 6,846,081.

Mochizuki et al. disclose a projector that includes a light source 101, a display device 102, and a projection lens 103. A lamp is used as the light source 101 and a LCD panel as the display device 102. The image sensor 105 is adjacent to the projection lens 103. The image sensor 105 captures the projected and displayed image as well as the shape of the screen 40.

Claim 1 patentably distinguishes over the cited art by claiming using at least a pair of imaging devices to sense and identify at least two boundaries defining a projection screen, said imaging devices being integral with said projector

Claims 2-8 depend from claim 1 and are patentable for the same reasons asserted for claim 1.

Mochizuki et al. disclose as illustrated in FIGS. 10 and 25 a lens focus position detection portion 127. A relationship (hereinafter, referred to as focus profile) between the distance from a projector 10 to the screen 40 and a focus position of the projection lens 103 when the projected and displayed image is focused is stored in advance in the projector 10 at the plant where the projector 10 is manufactured. Accordingly, the projector includes data that correlates the anticipated distance to the screen based upon the current focus of the projection lens.

The focus position of the projection lens 103 in a state of being focused at a scene used by the user is detected, and is compared to the focus profile, thereby making it possible to find out a

focused distance from the projector 10 to the screen 40. Accordingly, the user directs the projector at a screen, focuses the projector, and then initiates the adjustment mechanism. After the adjustment mechanism is initiated the projector uses the already set focus position of the lens to determine the distance to the screen. See, column 7, lines 33 to 62.

Claim 18 patentably distinguishes over the cited prior art by claiming that step (c) is a response to the initiating said keystoneing adjustment without further input from the user after the initiating of the keystoneing adjustment.

Claims 19-23 depend from claim 18 and are patentable for the same reasons asserted for claim 18.

Mochizuki et al. disclose a system that senses the location of the screen. However, the technique used is markedly different than the preferred technique disclosed in the applicant's application.

Claim 44 patentably distinguishes over the cited prior art by claiming the projector performing a median filter operation on the image, a gradient operation on the image, zero-crossing operation on the image to determine edge screen candidates, matching pairs of the edge screen candidates, and using statistical inference to select the matching pairs for the location of the screen.

Claims 45-48 depend from claim 44 and are patentable for the same reasons asserted for claim 44.

Mochizuki et al. disclose a projector that includes a light source 101, a display device 102, and a projection lens 103. A lamp is used as the light source 101 and a LCD panel as the display device 102. The image sensor 105 is adjacent to the projection lens 103. The image sensor 105 captures the projected and displayed image as well as the shape of the screen 40.

Claim 49 patentably distinguishes over the cited prior art by claiming using a plurality of imaging devices to sense an image projected from said projector.

Claims 50-54 depend from claim 49 and are patentable for the same reasons asserted for claim 49.

Claim 55 patentably distinguishes over the cited prior art by claiming using a plurality of imaging devices to sense an image projected from said projector.

Claims 56-64 depend from claim 55 and are patentable for the same reasons asserted for claim 55.

The Examiner rejected claims 10-14, 17, 19, 20, 65, and 67-72 as being unpatentable over Mochizuki et al., U.S. Patent No. 6,846,081 in view of Kawashima et al., U.S. Patent No. 6,592,228.

Mochizuki et al. disclose as illustrated in FIGS. 10 and 25 a lens focus position detection portion 127. A relationship (hereinafter, referred to as focus profile) between the distance from a projector 10 to the screen 40 and a focus position of the projection lens 103 when the projected and displayed image is focused is stored in advance in the projector 10 at the plant where the projector

10 is manufactured. Accordingly, the projector includes data that correlates the anticipated distance to the screen based upon the current focus of the projection lens.

The focus position of the projection lens 103 in a state of being focused at a scene used by the user is detected, and is compared to the focus profile, thereby making it possible to find out a focused distance from the projector 10 to the screen 40. Accordingly, the user directs the projector at a screen, focuses the projector, and then initiates the adjustment mechanism. After the adjustment mechanism is initiated the projector uses the already set focus position of the lens to determine the distance to the screen. See, column 7, lines 33 to 62.

Claim 10 patentably distinguishes over the cited prior art by claiming initiating a keystoning adjustment process by a user input at a location other than the projector and automatically adjusting the focus of the projector as a response to initiating the keystoning adjustment without further input from the user after initiating of the keystoning adjustment.

In contrast, any focus taught by Mochizuki et al. is performed manually by the user prior to adjustment which indicates the distance to the screen.

Claims 11-16 depend from claim 10 and are patentable for the same reasons asserted for claim 10.

Claim 65 patentably distinguishes over the cited prior art by claiming initiating a keystoning adjustment process by a user input and automatically adjusting the focus, the position, the zoom, of the projector as a response to initiating the keystoning adjustment without further input from the user after initiating of the keystoning adjustment.

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Claims 67-72 depend from claim 65 and are patentable for the same reasons asserted for claim 65.

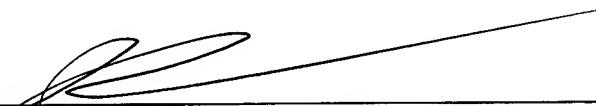
Claim 78 patentably distinguishes over the cited prior art by claiming a plurality of imaging devices to sense a projection screen.

Claims 79-83 depend from claim 78 and are patentable for the same reasons asserted for claim 78.

This Amendment is being submitted with a Petition for Extension of Time, together with the requisite fee. The Commissioner is hereby authorized to charge any additional fees, or credit any overpayment, to Deposit Account No. 03-1550.

Respectfully submitted,

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By 

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